

#5

Form 1449 (Modified)

Information Disclosure
Statement By Applicant

(Use Several Sheets if Necessary)

Atty Docket No.:
IMM142Application No.:
09/974,759

Applicant:

S. Rank

Filing Date:

10/9/01

Group:

Unassigned

U.S. Patent Documents

Examiner Initial	Patent No.	Date	Patentee	Class	Sub- Class	Filing Date
PAB	4,937,685	6/26/90	Barker et al.			
PAB	5,186,629	2/16/93	Rohen			
PAB	5,189,355	2/23/93	Larkins et al.			
PAB	5,203,563	4/20/93	Loper, III			
PAB	5,388,992	2/14/95	Franklin et al.			
PAB	5,399,091	3/21/95	Mitsumoto			
PAB	5,405,152	4/11/95	Katanics et al.			
PAB	5,565,840	10/15/96	Thorner et al.			
PAB	5,619,180	4/8/97	Massimino et al.			
PAB	5,669,818	9/23/97	Thorner et al.			
PAB	5,684,722	11/4/97	Thorner et al.			
PAB	5,767,457	6/16/98	Gerpheide et al.			
PAB	5,795,228	8/18/98	Trumbull et al.			
PAB	5,816,823	10/6/98	Naimark et al.			
PAB	5,844,392	12/1/98	Peurach et al.			
PAB	5,857,986	1/12/99	Moriyasu			
PAB	5,889,672	3/30/99	Schuler et al.			
PAB	5,959,613	9/28/99	Rosenberg et al.			
PAB	5,984,880	11/16/99	Lander et al.			
PAB	6,005,551	12/21/99	Osborne et al.			
PAB	6,088,017	7/11/00	Tremblay et al.			
PAB	6,131,097	10/10/00	Peurach et al.			
PAB	6,161,126	12/12/00	Wies et al.			
PAB	6,198,206	3/6/01	Saarmaa et al.			
PAB	6,252,583	6/26/01	Braun et al.			
PAB	6,285,351	9/4/01	Chang et al.			
PAB	6,292,170	9/18/01	Chang et al.			
PAB	6,300,936	10/9/01	Braun et al.			
PAB	6,131,097	10/10/00	Peurach et al.			

Examiner:

Paul Bell

Date Considered:

12/6/2002

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

#5

Form 1449 (Modified) Information Disclosure Statement By Applicant <i>(Use Several Sheets if Necessary)</i>	Atty Docket No.: IMM142	Application No.: 09/974,759
	Applicant: S. Rank	
	Filing Date: 10/9/01	Group: Unassigned

Foreign Patent or Published Foreign Patent Application

Examiner Initial	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation Yes	Translation No
P9B	WO02/27705	4/4/02	PCT			X	

Other Documents

Examiner Initial	Author, Title, Date, Place (e.g. Journal) of Publication
P9B	Gillespie, B., "The Touchback Keyboard," Proc. of Int'l Computer Music Conf., October 1992, pp. 447-448.
P9B	Gillespie, B., "The Virtual Piano Action: Design and Implementation," Proc. of Int'l Computer Music Conf., September 1994, pp. 167-170.
P9B	Snibbe, S. et al., "Haptic Techniques for Media Control," Proc. of 14 th Annual Symp. on User Interface Software and Technology, UIST 2001, November 2001, pp. 1-10.
P9B	MacLean, K. et al., "An Architecture for Haptic Control of Media," Proc. of ASME Dynamic Systems and Control Division, Haptic Interfaces for Virtual Environments and Teleoperator Systems, 1999, pp. 1-10.
P9B	O'Modhrain, M., "Playing by Feel: Incorporating Haptic Feedback into Computer-Based Musical Instruments," Dissertation, Dept. of Music, Stanford University, November 2000, pp. 1-107.

Examiner: Paul Bell	Date Considered: 12/6/2002
----------------------------	-----------------------------------

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449A/PTO

Complete if Known

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 3

Application Number 09/974,759
 Filing Date October 09, 2001
 First Named Inventor Stephen D. Rank
 Group Art Unit 2673
 Examiner Name Unassigned
 Attorney Docket Number IMMR-003/00US

RECEIVED

SEP 30 2002

Technology Center 2600

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
PA1	A1	5,785,630		Bobick, et al.	07/28/1998
PA4	A2	5,766,016		Sinclair et al.	06/16/1998
PA4	A3	5,547,382		Yamasaki et al.	08/20/1996
PA5	A4	5,466,213		Hogan et al.	11/14/1995
PA5	A5	5,334,027		Wherlock	08/02/1994
PA6	A6	5,309,140		Everett, Jr., et al.	05/03/1994
PA6	A6	5,299,810		Pierce et al.	04/05/1994
PA6	A7	5,275,174		Cook	01/04/1994
PA6	A8	5,271,290		Fischer	12/21/1993
PA6	A9	5,240,417		Smithson et al.	08/31/1993
PA6	A10	5,212,473		Louis	05/18/1993
PA6	A11	5,078,152		Bond et al.	01/07/1992
PA6	A12	5,038,089		Szakaly	08/06/1991
PA6	A13	5,035,242		Franklin et al.	07/30/1991
PA6	A14	5,022,407		Horch et al.	06/11/1991
PA6	A15	5,019,761		Kraft	05/28/1991
PA6	A16	4,934,694		McIntosh	06/19/1990
PA6	A17	4,930,770		Baker	06/05/1990
PA6	A18	4,891,764		McIntosh	01/02/1990
PA6	A19	4,794,392		Selinko	12/27/1988
PA6	A20	4,713,007		Alban	12/15/1987
PA6	A21	4,708,656		de Vries et al.	11/24/1987
PA6	A22	4,599,070		Hladky et al.	07/08/1986
PA6	A23	4,581,491		Boothroyd	04/08/1986
PA6	A24	4,513,235		Acklam et al.	04/23/1985
PA6	A25	4,236,325		Hall et al.	12/02/1980
PA6	A26	4,160,508		Salisbury, Jr.	07/10/1979
PA6	A27	3,911,416		Feder	10/07/1975
PA6	A28	3,903,614		Diamond et al.	09/09/1975
PA6	A29	3,902,687		Hightower	09/02/1975
PA6	A30	3,623,064		Kagan	11/23/1971
PA6	A31	3,517,446		Corlyon et al.	06/30/1970
PA6	A32	3,497,668		Hirsch	02/24/1970
PA6	A33	3,220,121		Culter	11/30/1965
PA6	A34	3,157,853		Hirsch	11/17/1964

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T ⁶
		Office ³	Number ⁴	Kind Code ⁵ (if known)			
PA6	B1		0 349 086	A1	Stork Kwant B.V.	01/03/1990	
	B2						

¹ Unique citation designation number.² See attached Kinds of U.S. Patent Documents.³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.⁶ Applicant is to place a check mark here if English language Translation is attached.

#6

Substitute for form 1449A/PTO			Complete Known		RECEIVED
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Application Number	09/974,759	
			Filing Date	October 09, 2001	SEP 30 2002
			First Named Inventor	Stephen D. Rank	
			Group Art Unit	2673	Technology Center 2600
			Examiner Name	Unassigned	
Sheet	2	3	Attorney Docket Number	IMMR-003/00US	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²	
PAB	C1	Baigrie, "Electric Control Loading - A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990		
PAB	C2	Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993		
PAB	C3	Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90		
PAB	C4	Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985		
PAB	C5	Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990		
PAB	C6	Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," <i>1993 IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993		
PAB	C7	Snow et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989		
PAB	C8	Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990		
PAB	C9	Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90		
PAB	C10	Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993		
PAB	C11	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992		
PAB	C12	Gotow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WAI1-11:00, pp. 332-337		
PAB	C13	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992		
PAB	C14	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992		
PAB	C15	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993		
PAB	C16	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990		
PAB	C17	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90		
PAB	C18	Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980		
PAB	C19	Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981		
PAB	C20	McAfee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," <i>JPL</i> 1988, JPL D-5172		
PAB	C21	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95		
PAB	C22	Jacobsen et al., "High-Performance, Dexterous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference & Exposition</i> , Hollywood, Florida, May 21-23, 1991		
PAB	C23	Shimoga, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," <i>Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration</i> , Rensselaer Polytechnic Institute, Sep. 30- Oct. 1, 1992		
PAB	C24	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990		
PAB	C25	Terry et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference</i> , University of New Hampshire, March 10-11, 1988		
PAB	C26	Howe, "A Force-Relating Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation</i> , Nice, France, May 1992		
PAB	C27	Eberhardt et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993		

#6

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete & Known			
		Application Number	09/974,759		
		Filing Date	October 09, 2001		
		First Named Inventor	Stephen D. Rank		
		Group Art Unit	2673		
		Examiner Name	Unassigned		
Sheet	3	of	3	Attorney Docket Number	IMMR-003/00US

<i>pub</i>	C28	Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987	
<i>pub</i>	C29	Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers</i> , San Francisco, CA, August 12-15, 1980	
<i>pub</i>	C30	Bejczy et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," <i>SOAR '89 Workshop, JSC</i> , Houston, TX, July 25-27, 1989	
<i>pub</i>	C31	Ouhyoung et al., "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," <i>IEEE Transactions on Consumer Electronics</i> , Vol. 41, No. 3, August 1995	
<i>pub</i>	C32	Marcus, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge</i> , Sep. 8-11, 1994	
<i>pub</i>	C33	Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number.

² Applicant is to place a check mark here if English language Translation attached.



RECEIVED

SEP 30 2002

Technology Center 2600